



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/872,125

05/31/2001

Steve West

5043P013

5575

8791

7590

10/05/2004

BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD
SEVENTH FLOOR
LOS ANGELES, CA 90025-1030

EXAMINER

MEHRA, INDER P

ART UNIT

PAPER NUMBER

2666

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/872,125

Applicant(s)

WEST ET AL.

Examiner

Inder P Mehra

Art Unit

2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,6-10,19,20,22-27,29-34,36-41 and 78-81 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,6-10,19,20,22-27,29-34,36-41 and 78-81 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This is in response to an amendment Response dated 9/24/04 which has been fully considered and made of record. Based on amendments A, B, C, D (after RCE), claims 1 (amended four times in amendments A,B, C and D) , 3 (amended twice in C and D), 6-7 amended once in amendment D, 9 (amended twice in B and C) , 19 (amended twice in C and D), 22-27 (amended twice in C and D), 29-34 (amended twice in C and D) and 36 amended once in amendment D, have been amended. Claims 22-35 were added in amendment B, claims 36-77 have been added in amendment C. Claims 5 and 21 were cancelled in amendment B dated:12/27/02. Claims 2, 4, 11-18, 21, 28 and 35 were cancelled (Amendment C dated: 4/21/03). Claims 42-77 have been cancelled now in amendment D. Claims 1, 3, 6-10, 19-20, 22-27, 29-34, 36 and 78-81 are now pending.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 22-24 and 29-31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) 22-24 and 29-31 contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Art Unit: 2666

Claims 22-24 and 29-31 recite the following limitations, which are not supported by specification, refer to pages 1-13:

- wherein one or more of the ingress interfaces segregates incoming data into queues based on flow identifier; as recited by claims 22 and 29;
- wherein one or more of the N interfaces segregates incoming data into queues based on a user identifier;, as recited by claims 23 and 30;
- wherein one or more of the N interfaces segregates incoming data into queues based on a session identifier;, as recited by claims 24 and 31;

Appropriate correction/clarification is required.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 3, 6-10, 22-27, 34, 37-38, 40-41, and 78-81, rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a. Claim 1 recites the limitation "the N ingress interfaces" in line 14. There is insufficient antecedent basis for this limitation in the claim.
- b. Claims 6-7 recites the limitation "the N buffers" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.
- c. Claim 9 recites the limitation "the egress buffer" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Art Unit: 2666

- d. Claim 10 recites the limitation "the mesh" in line 2. There is insufficient antecedent basis for this limitation in the claim.
- e. Claim 22 recites the limitation "queues" in line 7. There is insufficient antecedent basis for this limitation in the claim. Change "queues" to "the queues", because it is preceded by "queues" in claim 1 line 15.
- f. Claims 23-27 recites the limitation "the N ingress interfaces" in line 6. There is insufficient antecedent basis for this limitation in the claim.
- g. Claim 34 recites the limitation "the ingress interfaces" in line 6. There is insufficient antecedent basis for this limitation in the claim.
- h. Claims 37-38 recite the limitation "the N buffers" in line 2. There is insufficient antecedent basis for this limitation in the claim.
- i. Claim 40 recites the limitation "the egress buffer" in line 3. There is insufficient antecedent basis for this limitation in the claim.
- j. Claim 41 recites the limitation "the mesh" in line 2. There is insufficient antecedent basis for this limitation in the claim.
- k. Claim 78 recites the limitation "the service class identifier" in line 4. There is insufficient antecedent basis for this limitation in the claim.
- l. Claim 80 recites the limitation "the external sources" in line 2. There is insufficient antecedent basis for this limitation in the claim.
- m. Claim 81 recites the limitation "the corresponding ingress interface" in lines 3 and 4. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 3, 6-9, 19-20, 22-27, 29-34, 36-40, and 78-81 are rejected under 35

U.S.C. 103(a) as being unpatentable over **Kline et al** (US Patent No. 5,812,527), hereinafter **Kline**, in view of **Waclawsky** (US Patent No. 6449,255).

For claims 1, and 19-20, Kline discloses “a network switch” (switch mesh fabric 154 in figs 5, 6, 7 and 8, Asynchronous Transfer Mode (ATM) data is transmitted across the switch, refer to col. 10 lines 17 and 25; comprising:

- “an asynchronous mesh”, (in reference to figs.4, 5, 6, 7 and 8, **mesh** switch fabric 154, refer to col. 10 line 25, Asynchronous transfer Mode, refer to col. 1 lines 16-20);
- ingress interfaces (**ingress physical ports** 160 sub 1-4, fig. 5), coupled to the asynchronous mesh (154 fig. 5), the ingress interfaces having an ingress scheduler (**schedulers 208 and 280, fig. 6**); to receive data from external sources and to selectively schedule (**mesh** switch fabric 154, refer to col. 10 line 25, Asynchronous transfer Mode, refer to col. 1 lines 16-20) and asynchronously transmit the data across the asynchronous mesh according to a first schedule (208);
- egress interfaces (egress physical ports 162 sub 1-4, fig. 5), coupled to the asynchronous mesh (to second schedule (**280, fig. 6**) different than the first schedule,

where the ingress scheduler performs scheduling and transmitting data across the asynchronous mesh independent of the egress scheduler----scheduling and transmitting data to the external destinations (transmit ATM cells across mesh switch fabric 154 to the egress interface 146, fig. 6), where one or more of the N ingress interfaces segregates incoming data into queues based on a service class identifier.

- Further Kline discloses, *as recited in claim 19*, plurality of ingress cards 141 and 145 and plurality of egress cards 142 and 146, refer to fig. 6, and col. 12 lines 33-36; each of the ingress card comprises scheduler 208 for ingress and 280 for egress port, refer to, refer to figs. 5 and 6 under the control of scheduler 208 across the switch to corresponding egress port (buffer 250), refer to col. 17 lines 18-25;
- Kline discloses equal number of ingress and egress ports ($N=M$), *as recited in claim 20*, refer to fig. 5;

Kline does not disclose expressly the following limitations, which are disclosed by Waclawsky, as follows:

- an asynchronous (“operate asynchronously” refer to col. 7 lines 5-8);
- ingress scheduler (16 in fig. 1)-----selectively schedule -----according to first schedule (refer to col. 6 lines 1-20);
- egress scheduler (24 in fig. 1, refer to col. 5 lines 50-55)----schedule and transmit data to external destinations (14-B in fig. 1, refer to col. 5 lines 60-65)--- according to second schedule (output scheduler 24 in fig. 1 and refer to col. 5 lines 60-65);
- wherein one or more of the N ingress interfaces segregates incoming data into queues based on a service class identifier (refer to “ assign queues”, col. 6 lines 5-10);

Art Unit: 2666

- according to a second schedule different than the first schedule, where the ingress scheduler performs scheduling and transmitting data across the asynchronous mesh *independent of the egress scheduler performing scheduling*(two schedulers 16 and 24 are different from each other and operate independently depending upon the feed back signal, fig. 1 and figs. 1-7, abstract, col. 5 lines 44-67);

It would have been obvious to a person of ordinary skill in the art at the time of the invention to use the capability of, “asynchronous transfer, segregation of data in queues and independent schedulers”, as taught by Waclawsky. The capability can be implemented by combining into ingress and egress schedulers. The suggestion/motivation to do so would have been to segregate the traffic types based on quality of service requirements.

For claims 3 and 36, Kline discloses all the limitations of subject matter of these claims, with the exception of the following limitations. which are disclosed by Waclawsky, as follows:

* each of N ingress interfaces including N independent cache buffers (queues 30-A through 30-D, refer to col. 6 lines 10-20) to temporarily store incoming data at ingress interfaces; and N egress interfaces including N independent buffers (30-A and 30-D) interfaces to temporarily store at the egress interfaces incoming data received from the N ingress interfaces (22 in fig. 1, refer to col. 6 lines 10-20, refer to col. 7 lines 9-12 ;

It would have been obvious to a person of ordinary skill in the art at the time of the invention to use the capability of, “each of ingress and egress interfaces including independent buffers”, as taught by Waclawsky. The capability can be implemented by combining into ingress and egress schedulers. The suggestion/motivation to do so would have been to segregate

Art Unit: 2666

the traffic types based on quality of service requirements. It is obvious that these buffers can be built for each of the ingress interfaces.

For claims 6-9, and 37-40, Kline discloses all the limitations of subject matter of these claims, with the exception of the following limitations. which are disclosed by Wacławsky, as follows:

- “the egress interfaces generate a flow control signal (feedback signal 36 in fig. 1) to prevent access to one or more of the N buffers of the respective egress interfaces when an amount of data stored in the one or more of the N buffers exceeds a predetermined threshold”, **as recited by claims 6-7, 9, 37-38 and 40** (congestion, col. 7 lines 30-45) ;
- “wherein the N ingress interfaces transfer data to a shared egress buffer and fuether wherein the egress interfaces schedule and retrieve the data stored in the shared egress buffer prior to transmitting the data to the external destinations”,**as recited by claims 8 and 39**, refer buffer 22 in fig. 1 and col. 5 lines 55-60, and col. 5 line 65 through col. 6 line 20.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to use the capability of, “the egress interfaces generate a flow control signal”, as taught by Wacławsky. The capability can be implemented by combining into egress schedulers. The suggestion/motivation to do so would have been to segregate the traffic types based on quality of service requirements. It is obvious that these buffers can be built for each of the ingress interfaces.

Art Unit: 2666

For claims 22-27, and 29-34, Kline discloses, (refer to “An ingress connection identifier, a small integer, -----this ICID is used as described --to identify ---queue ---ingress processing)is computed refer to Ingress connection identifier (ICID) col. 10 lines 34-52, col. 8 lines 0-15; QOS , refer to col. 2 lines 6-16, col. 3 line 65; contracted QOS, refer to col. 12 lines 10-28);

- **flow identifier** (refer to claims 22 and 29); refer to “throughput and delays”, refer to col. 2 lines 13-15;”information flow”, refer to col. 2 lines 44-60;
- **user identifier** (refer to claims 23 and 30,); refer to controlling a user source transmission cell rate in the presence of congestion in the vc., refer to abstract;
- **session identifier** (refer to claim 24 and 31); support a number of traffic service categories, including CBR, VBR, ABR and UBR, refer to col. 1 lines 45-50;
- **service (QOS) identifier** (refer to claim 25 and 32); refer to “guaranteeing specific QOS levels”, col. 2 lines 8-12;
- **priority identifier** (refer to claim 26 and 33); refer to “local congestion is declared---- ABR traffic is treated differently, refer to col. 11 lines 1-13;
- **deadline identifier** (refer to claim 27 and 34); refer to support a number of traffic service categories, including CBR, VBR, ABR and UBR, refer to col. 1 lines 45-50

For claims 78, 80 and 81, Kline discloses all the limitations of subject matter, with the exception of the following limitations, which are disclosed by Waclawsky, as follows:

- wherein cache buffer of each egress interface comprises one or more queues each of the one or more queues corresponding to a distinctive service class, and wherein the

data received from the ingress interfaces is stored in the one or more queues based on the service class identifier associated with the data, **as recited by claim 78**, refer to col. 13 lines 1-16, col. 6 lines 5-10.

- wherein each of the queues is associated with a respective priority, **as recited by claim 79**, refer to col. 13 lines 1-11.
- wherein egress scheduler schedules and transmits data from each of the queues to the external sources according to a schedule associated with each of the queues determined based on the respective priority, **as recited by claim 80**, refer to col. 13 lines 44-67.
- wherein if an amount of data stored in one of the queues of an egress interface exceeds a predetermined threshold, the egress scheduler transmits a backpressure signal to the corresponding ingress interface, and wherein in responds to backpressure signal, the corresponding ingress interface from being transmitted to the egress interface, while allowing data of other service classes to be transmitted to the egress interface, **as recited by claim 81**, refer to col. 13 lines 45-55.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to use the capability of, “queues based on the service class identifier associated with the data”, a respective priority, responds to backpressure signal, as taught by Waclawsky. The capability can be implemented by combining into ingress and egress schedulers. The suggestion/motivation to do so would have been to segregate the traffic types based on quality of service requirements. It is obvious that these buffers can be built for each of the ingress and egress interfaces.

8. Claims 10 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kline et al** (US Patent No. 5,812,527), hereinafter Kline, in view of **Henrion et al** (US Patent No. 6,469,982).

For claims 10 and 41, Kline discloses all the limitations of subject matter of these claims, including “fixed length cells”(transmission of ATM (fixed-length) cells across switch fabric 154, refer to fig. 1; and virtual connection (VC) queues 290, fig. 8 for transfer data, fig. 8), with the exception of the following limitations. which are disclosed by Henrion, as follows:

* “variable length packets across the mesh to the egress interfaces”, refer to col. 5 lines 14-19

It would have been obvious to a person of ordinary skill in the art at the time of the invention to use the capability of, “the variable length packets”, as taught by Waclawsky. The capability can be implemented by combining into ingress and egress schedulers. The suggestion/motivation to do so would have been to segregate the traffic types based on quality of service requirements. It is obvious that these buffers can be built for each of the ingress and egress interfaces.

Response to Arguments

9. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Art Unit: 2666

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Inder P Mehra whose telephone number is 571-272-3170. The examiner can normally be reached on Monday through Friday from 8AM to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Inder Pal Mehra 9/26/04
Inder P Mehra
Examiner
Art Unit 2666

DANTON
PATENT EXAMINER